S.37

File With

SECTION 131 FORM

Appeal No

ABP— 314485-22

Defer Re O/H

To

SEO

Having considered the contents of the ~~submission dated~~ Observation/received 3/10/22 from Mary Brylert. I recommend that section 131 of the Planning and Development Act, 2000 be/~~not be~~ invoked at this stage for the following reason(s):

No new issues raised.

Signed

EO

Date

14/10/22

To

EO

Section 131 not to be invoked at this stage. ☐

Section 131 to be invoked — allow 2/4 weeks for reply. ☐

Signed

SEO

Date

Signed

SAO

Date

M

Please prepare BP ..... — Section 131 notice enclosing a copy of the attached submission.

To

Task No

Allow 2/3/4 weeks

BP

Signed

EO

Date

Signed

AA

Date

An Bord Pleanála

Planning Appeal Online Observation

Online Reference
NPA-OBS-001362

Online Observation Details

Contact Name	Lodgement Date	Case Number / Description
Mary Bryllert	03/10/2022 14:13:21	314485

Payment Details

Payment Method	Cardholder Name	Payment Amount
Online Payment	Mary Bryllert	€50.00

Processing Section

S.131 Consideration Required

☑ Yes — P.T.O. ☐ N/A — Invalid

Signed

BP40 issued ✓
PB 7/10/22

An Bord Pleanála

Observation on a Planning Appeal: Form.

Your details

1. Observer's details (person making the observation)

If you are making the observation, write your full name and address.

If you are an agent completing the observation for someone else, write the observer's details:

Your full details:

(a)	Name	Mary Bryllert
(b)	Address	Sunnyfield, Rath, Swords, Co. Dublin K67T635

Agent's details

2. Agent's details

If you are an agent and are acting for someone else **on this observation**, please **also** write your details below.

If you are not using an agent, please write "Not applicable" below.

(a)	Agent's name	Not applicable
(b)	Agent's address	Not applicable

Postal address for letters

3. During the appeal process we will post information and items to you **or** to your agent. For this observation, who should we write to? (Please tick ✓ one box only.)

You (the observer) at the address in Part 1	✓	**The agent at the address in Part 2**	☐

Details about the proposed development

4. Please provide details about the appeal you wish to make an observation on. If you want, you can include a copy of the planning authority's decision as the observation details.

(a) Planning authority

(for example: Ballytown City Council)

Fingal County Council

(b) An Bord Pleanála appeal case number (if available)

(for example: ABP-300000-19)

PL06F.314485

(c) Planning authority register reference number

(for example: 18/0123)

F20A/0668

(d) Location of proposed development

(for example: 1 Main Street, Baile Fearainn, Co Abhaile)

Dublin Airport, Co Dublin

Observation details

5. Please describe the grounds of your observation (planning reasons and arguments). You can type or write them in the space below or you can attach them separately.

I support the current appeals lodged with An Bord Pleanála and wish to add the following comments listed below.

1.0 HEALTH IMPACTS OF THE PROPOSAL ARE NOT ADEQUATELY ADDRESSED

When the North Runway was assessed by An Bord Pleanála in 2007 it concluded that the noise and associated health impact of night-time flights was too significant to allow unrestricted airport operations at night. In the intervening years further evidence of the health impacts of night-time noise exposure has been developed. Not least the 2009 WHO Night Noise Guidelines for Europe https://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf and the 2018 WHO European Noise Guidelines for the European Region https://www.who.int/europe/publications/i/item/9789289053563.

Additional research by Basner et al and others [1] has also developed strong links between aircraft noise and health.

These and other studies have shown clear exposure response relationships between the maximum level of individual noise events and impacts during sleep. Therefore, when assessing the impact of noise on sleep it is necessary to consider the noise from individual events such as L_{AFmax} and SEL, as well as the overall average noise level such as L_{night}.

The EIAR fails to fully assess the severe health impacts the proposed development will have on dwellings nearby and in particular does not assess impacts on sleep as a result of the individual noise events as discussed above. Instead, Chapters 7 and 13 of the EIAR only use average noise descriptors such as L_{den} and L_{night} to assess population exposure response to noise. This approach is inadequate and fails to consider the impact as a result of maximum noise levels experienced by dwellings nearby. Further evidence of the maximum noise levels experienced by dwellings since the opening of the North Runway is presented in Section 5.0 of this document.

I would direct An Bord Pleanála to recent UK developments such as the HS2 rail project and the expansion of Bristol Airport. The HS2 project adopted the following criteria for Lowest Observable Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL).

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[1] Basner M, Müller U, Elmenhorst EM. Single and combined effects of air, road, and rail traffic noise on sleep and recuperation. Sleep 2011; 34: 11–23;
Basner M, M üller U, Griefahn B. Practical guidance for risk assessment of traffic noise effects on sleep. Appl Acoust 2010; 71: 518–22;
Basner M. Nocturn al aircraft noise increases objectively assessed daytime sleepiness. Somnologie 2008; 12: 110–17;
Imenhorst EM, El menhorst D, Wenzel J, et al. Effects of nocturnal aircraft noise on cognitive performance in the following morning: dose- Jarup L, Babisch W, Houthuijs D, et al, and the HYENA study team.
Hypertension and exposure to noise near airports: the HYENA study. Environ Health Perspect 2008; 116: 329–33. Response relationships in laboratory and field. Int Arch Occup Environ Health 2010; 83: 743–51.

Table 1 - Noise effect levels for permanent residential buildings

Time of day	Lowest Observed Adverse Effect Level (dB)	Significant Observed Adverse Effect Level (dB)
Day (0700 – 2300)	50 $L_{pAeq,\ 16hr}$	65 $L_{pAeq,\ 16hr}$
Night (2300 – 0700)	40 $L_{pAeq,\ 8hr}$	55 $L_{pAeq,\ 8hr}$
Night (2300 – 0700)	60 L_{pAFMax} (at the façade, from any nightly noise event)	80 L_{pAFMax} (at the façade, from more than 20 nightly train passbys), or 85 L_{pAFMax} (at the façade, from 20 or fewer nightly train passbys)

Table 2 - Noise impact levels for noise sensitive non-residential buildings and external amenity spaces

Examples	Day 0700-2300	Night 2300-0700
Large and small auditoria; concert halls; sound recording & broadcast studios; and theatres	60 dB L_{pAFMax} or 50 dB $L_{pAeq,\ 16hr}$	60 dB L_{pAFMax} or 50 dB $L_{pAeq,\ 8hr}$
Places of meeting for religious worship; courts; cinemas; lecture theatres; museums; and small auditoria or halls	50 dB $L_{pAeq,\ 16hr}$	n/a
Schools; colleges; hospitals; hotels; and libraries	50 dB $L_{pAeq,16hr}$	45 dB $L_{pAeq,8hr}$
Offices and external amenity spaces	55 dB $L_{pAeq,16hr}$	n/a

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672395/E20_-_Control_of_Airborne_Noise_v1.5.pdf

The planning decision to grant permission for HS2 specifies in the register of undertakings and assurances that the developer is to take all reasonable steps to ensure that the LOAEL values listed above are not exceeded.

https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fgovernment%2Fuploads%2Fsystem%2Fuploads%2Fattachment_data%2Ffile%2F1076072%2FPhase_1_Register_of_Undertakings_and_Assurances_v.1.8.15.xlsx&wdOrigin=BROWSELINK

For the Bristol Airport expansion project the following LOAEL and SOAEL values were adopted in the appeal decision to grant permission.

https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/b2/09/b20947a3-b2e9-467a-b3fd-90a7e438c112/appeal_decision_3259234.pdf

Daytime Criteria $L_{Aeq,16h}$	Night-time Criteria		
	$L_{Aeq,8h}$	L_{ASmax}	SEL
51dB (LOAEL)	45dB (LOAEL)	60dB	70dB(A)
63dB (SOAEL)	55dB (SOAEL)	80dB	90dB(A)
69dB (UAEL)	63dB (UAEL)	90dB	100dB(A)

It is perhaps worth noting that the noise consultant for Bristol Airport is also Bikerdale Allen Partners who are the consultants for DAA. However, they do not propose the same criteria at Dublin.

For both projects it was found that the Environmental Statements initially submitted to the planning authorities were inadequate as they did not assess the potential health impacts of individual noise events using L_{AFmax} or SEL parameters.

I ask An Bord Pleanála to investigate if the EIAR submitted by DAA is in fact adequate in terms of the assessment it has conducted on the negative health impacts of the North Runway. I can attest from direct experience since the runway was opened that the noise levels from individual flights are excessively loud and the thought of having such high noise levels during the night at my house is absolutely horrifying.

There is such a sense of dread and foreboding in this area, since the opening of the new runway, about what might be in the future, that it is already impacting on people's health. Very significantly.

I invite any inspectors from An Bord Pleanála or any technical experts they may consult with to visit my house and experience for themselves the noise levels being generated.

My children are constantly coming over to me and saying "...There is another low flying, very loud plane.."

What is this? How can Fingal County Council justify this? What is going on there? I have sent in a Planning Enforcement form to them already.

It will not need any expertise in noise or medical training to understand how the operation of the North Runway at night will have significant health impacts on my family.

2.0 FLIGHT PATHS

The flight paths taken by aircraft arriving and departing Dublin Airport are clearly a major input into the impact assessments. However, as you will see in the following sections there are very significant differences between the flight paths assessed in the original North Runway application that was granted permission in 2007, what the DAA ask for in the current application and what they are actually doing since the North Runway opened. In summary the following table describes the basic flight paths for westerly departures from the North Runway in each of these cases.

Source	Flight Path Description
North Runway 2007 Granted Permission	Category A & B (i.e. propellor and small jets) departures fly straight out until 750ft is reached before turning. Category C & D (i.e. jets) departures fly straight out for 5nm or until 3000ft is reached before turning.
Relevant Action EIAR – Current Application	Category A & B (i.e. propellor and small jets) departures fly straight out until 750ft is reached before turning. Category C & D (i.e. jets) departures fly straight out for 1.18nm before diverging north by 30-degrees or 75-degrees
Actual Operations since North Runway Opened in August 2022	Aircraft of any category turn immediately on takeoff once 650ft altitude is reached diverging north by 30-degrees or 75-degrees

The following sections discuss in more detail the flight paths for each scenario in this table.

2.1 2007 North Runway Flight Paths

In 2007 the North Runway application presented all impacts on the basis of flights that were straight out from the runway for at least 5 nautical miles or until the aircraft reached 3,000ft.

This is what was granted permission by An Bord Pleanála and is also what formed the basis of the noise insulation contours produced by DAA in compliance submissions to Fingal Co Co.

2.2 EIAR Flight Paths

In the current application the DAA are changing the flight paths for departures. This change of flight path cannot be underestimated for the people living under the proposed flight path. The DAA's application does not appropriately assess the environmental or health impacts of changing the flight path in isolation.

The issue of divergent flight paths is only briefly discussed in the EIAR. In summary DAA describe the proposed flight paths for the North Runway as follows:

NA-10	Accepted NPR for North Runway	*Three-Runway Noise Preferential Routes (NPRs) or Environmental Corridors (ECs) and Track Keeping* – Intent is to minimise disruption by routing aircraft away from built-up areas, where possible. Unless directed otherwise by IAA-ANSP, all aircraft taking off from Dublin Airport are required to follow specific NPRs. To minimise impact, NPRs are designed to avoid overflight of built-up areas, where possible. An NPR is a path or corridor (1.8 kilometres at its widest point) that aircraft follow from take-off until being directed by IAA- ANSP onto their main air traffic routes, typically at 3,000 feet altitude above mean sea level. Aircraft flying inside the NPR corridor are flying on-track. The preferred departure flight path NPR is straight out on the South Runway and divergence paths of 30-degrees and 75-degrees for the North Runway for westerly flow and straight out on the South Runway and a divergent path of 15-degreesd for easterly flow	×	✓	×

This very brief entry states that westerly departures for the North Runway will operate divergent flight paths of 30-degrees and 75-degrees while easterly departures will diverge 15-degrees.

This is a very significant difference to what was originally granted permission and the DAA's application documents do not make clear statements of this change. Therefore, many families will be unaware of the fact that the flight paths are different to what they may have expected based on all information provided in 2007 and subsequently in noise insulation contour information. Figure 1 taken from the compliance submission from DAA to Fingal for Condition 7 demonstrates that the flight paths used for the generation of the sound insulation contours are based on departures flying straight out. Divergence does not occur until flights cross the R135 regional road approximately 3.6km from the end of the North Runway following a similar approach to how the South Runway has historically operated.

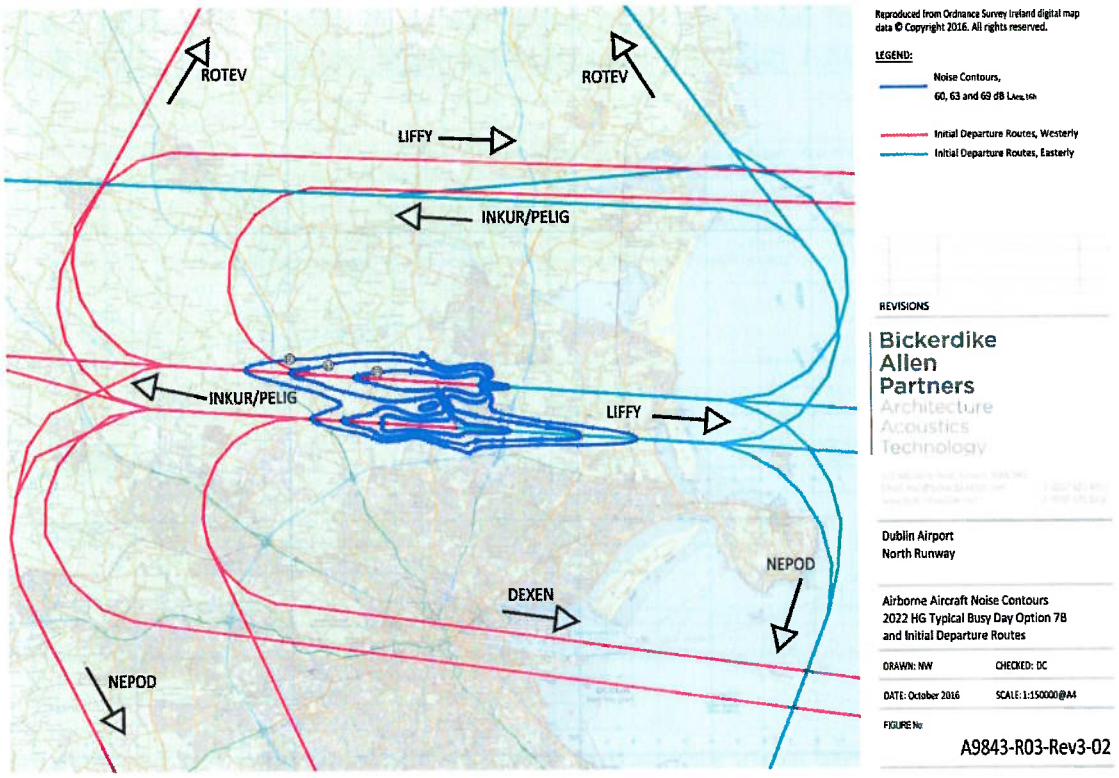

Figure 1 DAA Compliance Submission Flight Paths

The current application does not assess the change in impacts that would occur on the ground as a result of these new divergent flight paths. Instead the DAA application presents its impacts as if the straight out flight paths used in 2007 no longer exist.

I argue that because the flight paths are so fundamental to the impact assessment it is necessary for the new flight paths to be assessed in terms of their environmental impact before any conclusions can be made. This has not been done by the DAA and they are assuming acceptance of the new divergent flight paths in their assessment. This is inadequate and no impact assessment is presented of the new flight paths across both daytime and night-time.

A question for An Bord Pleanála is should the new divergent flight paths not be assessed from first principals also as part of the current application. Flight paths taken are fundamental to the noise and health impacts experienced on the ground. If DAA are changing the flight path from what was assessed in 2007 and also changing the flight path from what they used in compliance documents submitted to Fingal then the compliance documentation is incorrect. The impacts discussed in 2007 are clearly no longer valid. The clear intent of Conditions 6 and 7 of the original grant of permission is that qualifying dwellings and schools are insulated from noise before the North Runway is operational. Based on the divergent flight path numerous additional residences and potentially schools would most likely now qualify for noise insulation as per Conditions 6 and 7 of the original grant for permission. Therefore, at a minimum these properties should also be noise insulated before the North Runway

became operational. A reasonable argument could be made that the current Northern Runway operations are not in compliance with the intent of Conditions 6 and 7 of the original grant of permission.

Furthermore, the Do Nothing scenario presented in the EIAR is inaccurate as it is not representative of the permitted situation as assessed with straight out flight paths in 2007. In addition to this the DAA have failed to assess the noise impact of changing the flight path both during daytime operations and night-time operations. In fact DAA have failed to assess the real flight paths they are operating since the North Runway became operational. Noise impact assessments are not accurate as they are based on a fictional flight path that does not exist in practice.

The DAA have claimed that their application is only to change Conditions 3(d) and 5 and nothing else. However, changing the flight paths changes the impacts across the entire day and this has not been assessed on its own. An Bord Pleanála should refuse the current application on the basis that the environmental assessment is incomplete.

2.2.1 EIAR Noise Assessment Flight Paths

To determine the noise impact of North Runway operations a model was developed, and a key input are the flight paths being taken. Appendix 13B details the assumptions used as follows,

> 13B.3.42 A set of departure routes from the North Runway was then developed that replicated the current routes as closely as possible, while allowing for these initial turns. The result is routes with an early turn to the north. When heading east all of the routes turn 15° at 1.06nm from the end of the runway. When heading to the west the routes to DEXEN, INKUR, NEPOD, PELIG and SUROX turn 30°, while those to ABBEY and ROTEV turn 75°, all at 1.18nm from the end of the runway.

These flight paths are illustrated in Figure 13B-3 of the EIAR appendix 13B is reproduced here in Figure 2. I also refer An Bord Pleanála to Section 2.3 of this report which discusses the difference between what the EIAR proposes and the actual flight paths being flown.

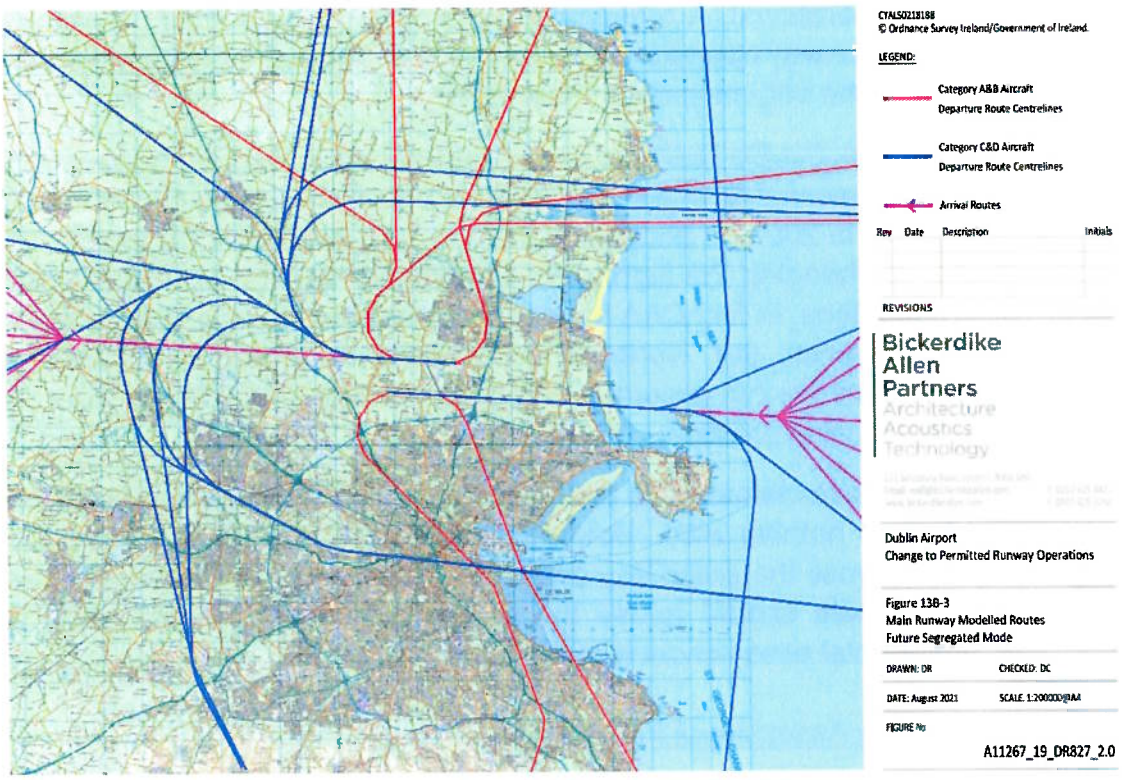

Figure 2 EIAR Noise Model Flight Paths

2.2.2 EIAR Crash Risk Assessment Flight Paths

Chapter 8 of the EIAR deals with Major Accidents and Disasters, essentially presenting risk contours of unacceptable risks to individuals or society as a result of an accident. In the case of an airport operation the risk of aircraft crashes is one of the items examined. In order to assess this risk the authors prepared a model which is described in detail in Appendix 8A. Inputs to the model include the flight paths to be taken and Section A8.2.6 states,

A8.2.12 In order to ensure an adequate lateral separation between aircraft using the Southern Runway and those using the North Runway, proposed future Northern Runway departure routes for larger aircraft within PANS-OPS Categories C and D include a course divergence of at least 15° to the north, shortly after

A8.4

Classification: Class 1 - General

take-off at 1.06 and 1.18 nautical miles for easterly and westerly take-offs, respectively. During departures from the Northern Runway, Category A and B aircraft are expected to execute an earlier turn and leave the extended runway centreline to the north shortly after the end of the runway.

This description is clearly at odds to the flight paths described in other areas of the DAA submission. It would therefore appear that the Crash Risk Assessment is incorrect and incomplete. I ask An Bord Pleanála to consider this in their assessment.

2.2 Actual Flight Paths

Since the North Runway became operational on 24th August 2022 it is apparent that the flight paths being used are very different to any of the flight paths presented to date by DAA in their public consultation or planning documentation.

The actual operation of the North Runway since opening on 24th August 2022 has westerly departures diverging once a height of 650ft above sea level has been reached. This information is from the IAA Standard Instrument Departure charts, for example the one presented in Figure 3 for Category C & D jets. This chart is directing all departures from the North Runway to turn onto headings of 308° or 339° once a height above sea level of 650ft is reached. It should be noted that Dublin Airport is 217ft above sea level so aircraft are only 433ft above the ground when making this turn. For some of the larger aircraft, wingtips are less than 1.5 wingspans above the ground when turning. Pilots have commented that they are pointing their wings directly at houses the turns are so severe.

To summarise the following table describes the flight paths for westerly departures from the North Runway for what was granted permission in 2007 versus what is happening today.

Source	Flight Path Description
North Runway 2007 Granted Permission	Category A & B (i.e. propellor and small jets) departures fly straight out until 750ft is reached before turning. Category C & D (i.e. jets) departures fly straight out for 5nm or until 3000ft is reached before turning.
Actual Operations since North Runway Opened in August 2022	Aircraft of any category turn immediately on takeoff once 650ft altitude is reached diverging north by 30-degrees or 75-degrees

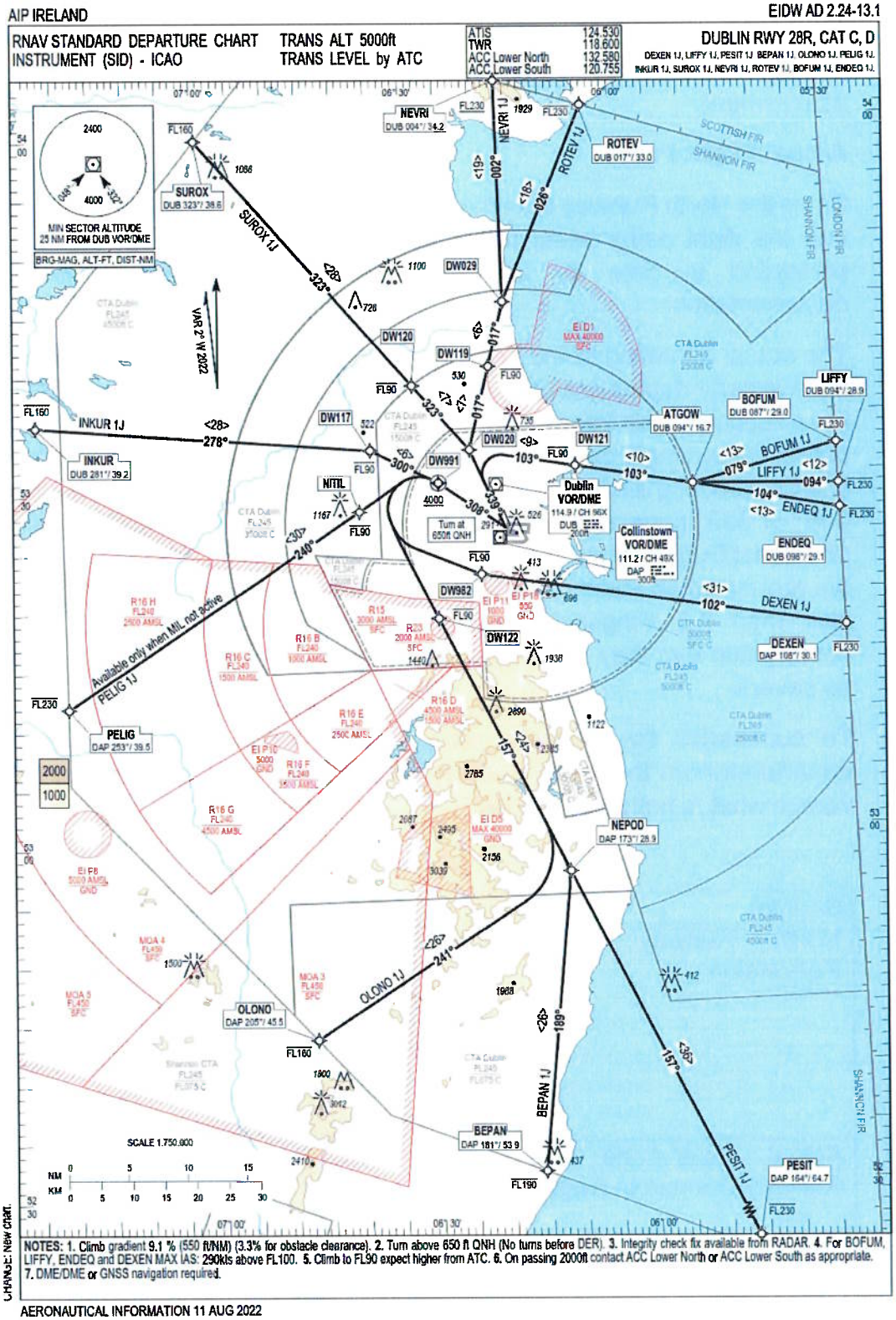

Figure 3 SID For North Runway Westerly Departures

Figures 4 presents the actual departure flight tracks from the North Runway since opening on the 24th August, in green, overlaid onto the flight paths proposed by the DAA in this EIAR. Each green line represents a flight, and it is

very clear that the departures from the North Runway are diverging much earlier than the flight paths used by the DAA in all noise contour production. This earlier turn places the flight path directly above properties, including my own, never identified as being impacted by the flight paths in the submitted planning documents. Therefore, no impact assessment has been completed for the manner in which the North Runway has been operated since opening on 24 August 2022.

This can only mean that DAA made significant errors in the inputs to their assumed flight paths, or the IAA have made an error in how the runway should operate. An Bord Pleanála should declare the current planning application invalid as it is clearly not representative of how the DAA are operating or how they propose to operate the North Runway.

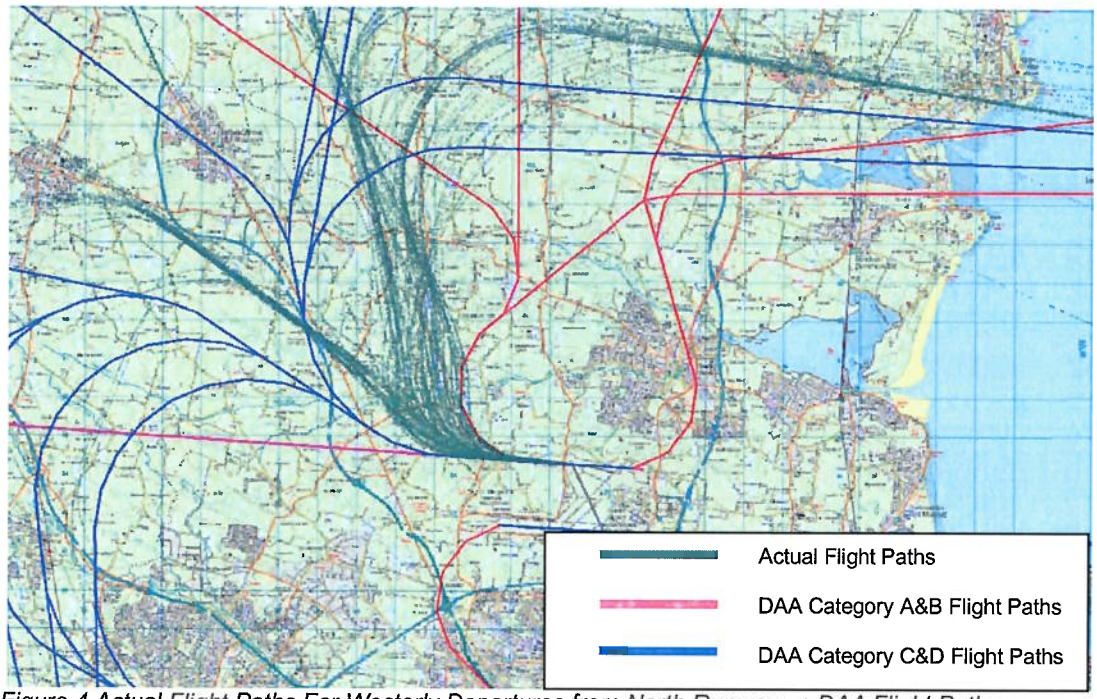

Figure 4 Actual Flight Paths For Westerly Departures from North Runway vs DAA Flight Paths

Figure 5 illustrates the actual flight paths above my house since the North Runway became operational versus the flight paths being proposed by the DAA in this application. The dispersion and wide area that is now under a flight path is shocking and wildly different to the information put forward by DAA. An Bord Pleanála should need to look no further than this to understand that the current application is invalid and not representative of what the DAA intend to do. Permission should be refused for night flight and the DAA should be made to close the North Runway or operate it within the planning permission they were granted in 2007.

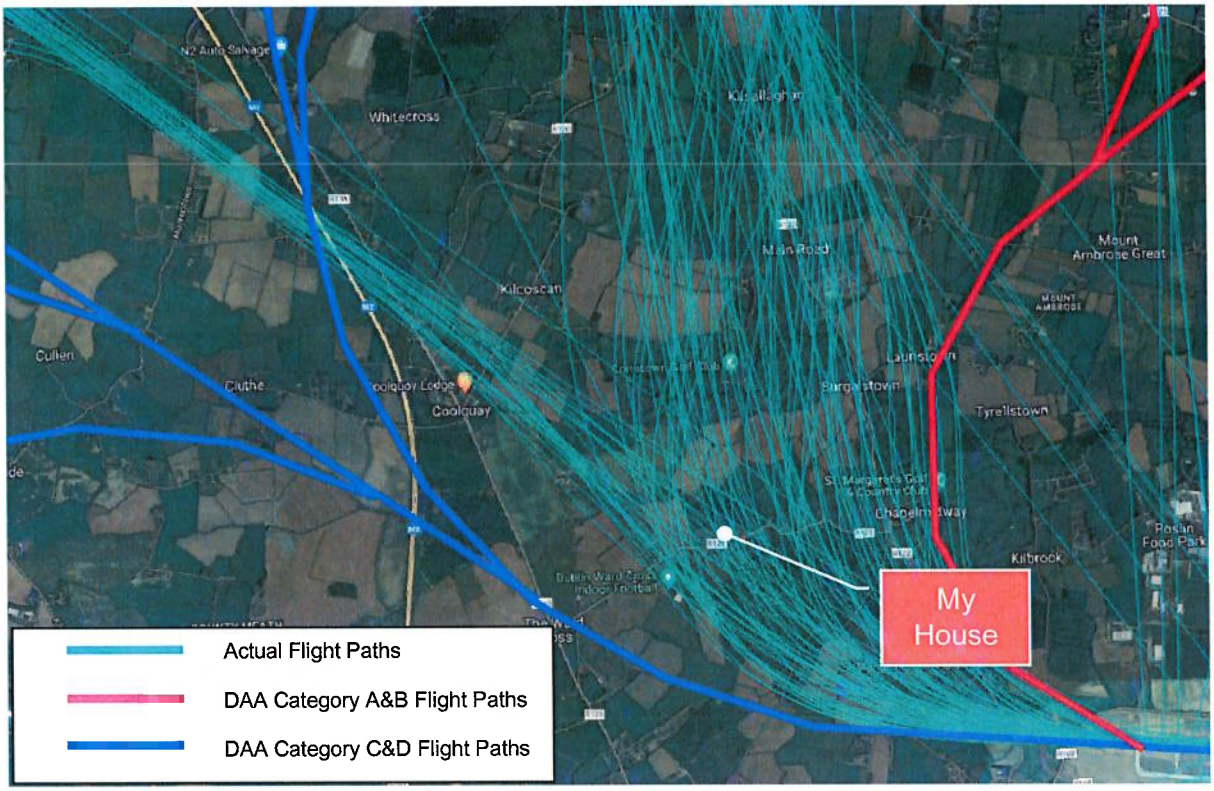

Figure 5 Actual Flight Paths versus DAA EIAR Flight Paths at My House

3.0 QUOTA SYSTEM

The noise quota system proposed by the DAA in place of a movement cap is fundamentally in favour of the airport operator only and does not limit the environmental impact in any way on the surrounding communities.

The quota system assigns a Quota Count (QC) value to each aircraft type depending on the certified noise levels of each aircraft. However, while an aircraft may only be marginally less noisy than one in an adjacent quota band the QC count is halved.

As an example, the table below produces the Quota Count set by ANCA in their decision for aircraft of various Noise Classification Levels.

Noise Classification Level	Quota Count (QC)
Greater than 101.9 EPNdB	16.0
99-101.9 EPNdB	8.0
96-98.9 EPNdB	4.0
93-95.9 EPNdB	2.0
90-92.9 EPNdB	1.0
87-89.9 EPNdB	0.5
84-86.9 EPNdB	0.25
81-83.9 EPNdB	0.125
Less than 81 EPNdB	0

If two specific aircraft are considered as follows:

- QC/1.0 aircraft with a noise classification of 92.9dB
- QC/2.0 aircraft with a noise classification of 93dB

According to the quota system it is acceptable to have twice as many of the QC/1.0 aircraft movements within the quota system than the QC/2.0 aircraft while in fact there is only 0.1dB of a difference between them. That noise difference is imperceptible to the human ear. Despite each plant being marginally less noisy when the number of flights doubles this will increase the noise impact on the ground by 3dB.

Ultimately the quota system without any movement cap is a method that will only allow increased flights in future as aircraft make marginal reductions in their noise emissions to drop down a QC category. This approach cannot be considered a noise mitigation measure as the DAA would promote it. It is simply another way to describe the DAA getting exactly what they want which is unrestricted night-time flight numbers.

An Bord Pleanála should refuse the quota system as proposed and instead review the systems in use in other airports where the quota count is lower than that proposed by DAA and there is a movement limit in place also. Note the following from the Heathrow website describing how a movement limit and quota can work together.

How the quota count and movement limit work together

The movement limit and quota count restrictions work together to make sure the overall number of night flights are limited and that the quietest planes are used:

- If newer quieter planes are used their night quota scores will be low but the total number will be restricted by the movement limit
- If noisier aircraft are used their night quota scores will be high and their number will be restricted by the quota count limit

The quota count combined with the movement limit ensure the total number of night flights are restricted at Heathrow and the use of the quietest planes is encouraged.

The following table summarises the differences across several London airports and what DAA want for Dublin.

Table 1: Summary of Noise Quota Scheme for London Airports and that proposed for Dublin

		Movement Limit	Noise Quota Limit	Ban on QC4 rated aircraft	Time Period
Heathrow	Winter	2,550	2,415	Yes	23:30 – 06:00
	Summer	3,250	2,735		
Gatwick	Winter	3,250	1,785	Yes	23:30 – 06:00
	Summer	11,200	5,150		
Stansted	Winter	5,600	3,310	Yes	23:30 – 06:00
	Summer	8,100	4,560		
Dublin	Winter	None	16,260	Yes	23:00 – 07:00
	Summer				

It is clear that the DAA approach is effectively unrestricted movements. This cannot be allowed as it would have huge negative impacts on the surrounding communities.

Furthermore, there is evidence from the CAA in the UK in their document Review of the Quota Count (QC) System:Re-analysis of the Differences between Arrivals and Departures https://publicapps.caa.co.uk/docs/33/ERCD0204.PDF that the actual noise levels measured from arrivals and departures to London airports can in many cases be high enough for the QC count to be doubled for certain aircraft. This calls the merits of the quota system in significant doubt and provides no certainty to the local communities affected that there will be any restriction on operations.

Finally, simply put DAA cannot be trusted to operate within the quota system which can only be calculated at the end of the years operation. Will DAA shut down the airport when they have reached their quota early? This is clearly not going to happen so if that is the case what restriction does the quota system actually apply?

I ask An Bord Pleanála to refuse permission for the Quota Count system and instead replace it with a simplified movement limit for each night. This would be easy to police and would provide certainty to the local communities that aircraft movements at night will not increase over time which is precisely what the Quota Count system allows.

4.0 NOISE INSULATION SCHEME

The proposed noise insulation scheme for night-time flights is a lesser scheme when compared to the daytime insulation scheme currently in place. The proposed €20,000 grant will not be sufficient to adequately insulate affected houses. In all other infrastructure developments in Ireland, be they roads or rail, the developer pays for the mitigation required. In this instance DAA and ANCA are proposing a scheme where the affected homeowner must pay towards the mitigation. This flies in the face of the polluter pays principal that is well established in Ireland.

A cursory search online found that 50dB L_{night} or 55dB L_{night} are both used as a threshold for insulation depending on the airport. Vienna Airport uses 65dB day and 57dB night as relocation thresholds. 60dB day is used as a threshold for insulation in Gatwick. The following table summarises some of the thresholds in place in other locations.

Airport	Insulation Thresholds	Relocation/Voluntary Purchase
Dublin	63dB $L_{Aeq,16hr}$ 55dB L_{night}	69dB $L_{Aeq,16hr}$
Vienna	54dB L_{day} 45dB L_{night}	65dB L_{day} 57dB L_{night}
Gatwick	60dB $L_{Aeq,16hr}$	66dB $L_{Aeq,16hr}$
Germany (New/Expanding Airfield)	55-60dB L_{day} 50dB L_{night} & 6 x 68dB(A) L_{Amax}	

Almost all schemes cover the full cost of insulation. Interestingly the aircraft noise exposure document published by the European Commission in 2007 https://transport.ec.europa.eu/system/files/2016-09/2007_10_aircraft_noise_exposure_en.pdf has several quotes from Dublin Airport in it, including that the average cost of insulating houses was €20,000 in 2007. If insulation cost €20,000 in 2007 it must be multiples of that now in terms of costs to account for inflation and increased building regulation requirements?

As the newest runway in the EU, Dublin Airport should be aiming for the highest standards of insulation schemes. They have had decades of land use planning to restrict new housing in the noise zones so the numbers of properties they need to insulate is already controlled from what it could have been. Also, insulation is a once off, pay for it fully and it is done.

An Bord Pleanála should review the noise insulation scheme against other jurisdictions and apply the highest standards internationally to Dublin Airport.

5.0 DAA LONGITUDINAL STUDY

In 2018 responding to a request from St Margaret's Concerned Residents Group DAA's aviation noise consultants Bickerdale Allen Partners (BAP) produced a Longitudinal Analysis of L_{Amax} and SEL noise levels. BAP predicted the noise from six key aircraft types departing and arriving at Dublin Airports North Runway at eight points ranging from 0.5km to 4 km in 0.5 km steps. The report is included in this observation.

Figure 6 shows the calculation points used.

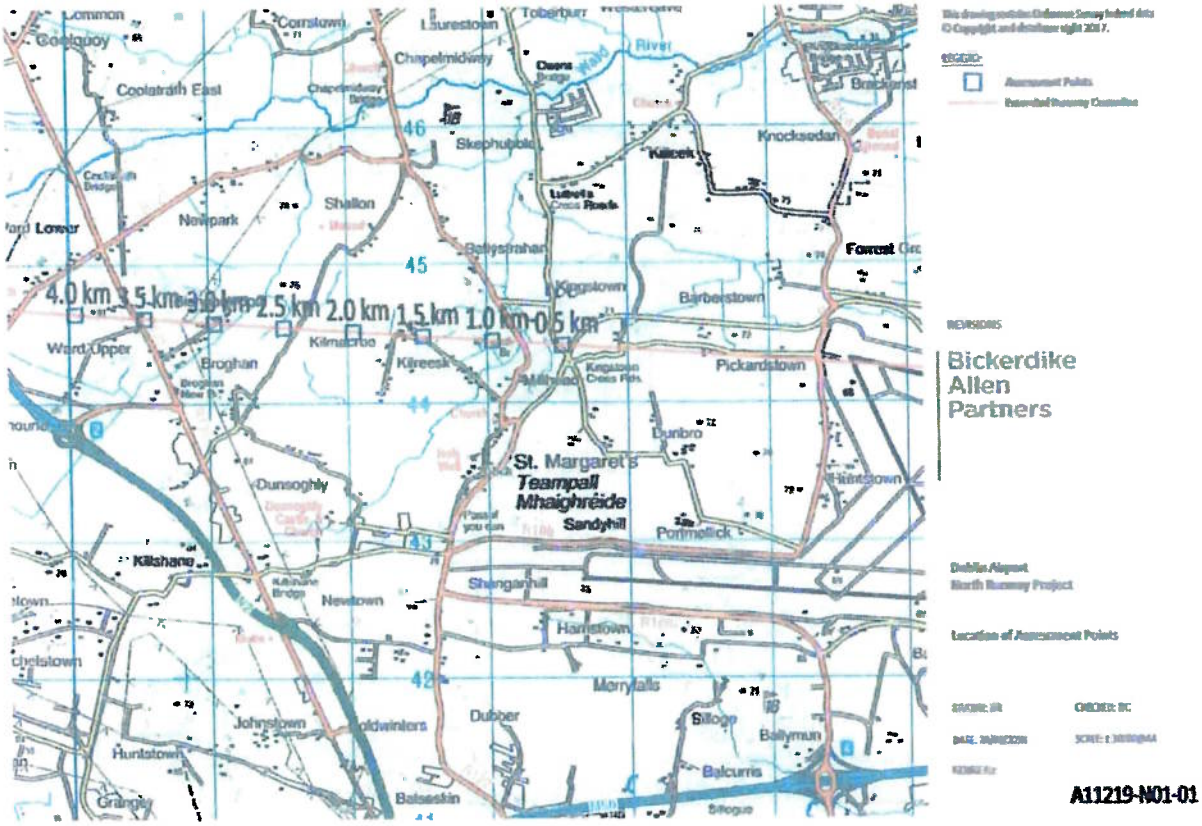

Figure 6 Longitudinal Analysis Assessment Points

The methodology used by BAP is described in their report and they state that noise levels are modelled using the Federal Aviation Administration (FAA) Integrated Noise Model (INM) version 7.0d.

For this assessment straight flight paths were modelled, again noting that in 2018 when this report was prepared DAA had already openly stated that divergence would be required for departures on the North Runway.

Figure 7 presents the results of this assessment in terms of L_{Amax} levels from each aircraft type considered at each assessment point.

Operation	Aircraft Type	Noise Level, dB L_{Amax}							
		0.5 km	1.0 km	1.5 km	2.0 km	2.5 km	3.0 km	3.5 km	4.0 km
Departure	Airbus A320	86	83	78	78	77	77	76	76
	Airbus A330-300	91	90	89	88	87	83	82	81
	Airbus A380	89	88	87	86	85	84	83	83
	Boeing 737 Max8	87	84	81	79	78	77	77	76
	Boeing 737-800	90	87	83	81	80	80	79	79
	Boeing 737-200	96	94	93	92	90	87	86	85
Arrival	Airbus A320	94	90	87	85	83	81	80	79
	Airbus A330-300	97	93	90	87	86	84	83	82
	Airbus A380	95	91	89	87	85	83	82	81
	Boeing 737 Max8	94	90	87	85	83	81	80	79
	Boeing 737-800	94	90	87	85	83	81	80	79
	Boeing 737-200	94	90	88	86	84	82	81	80

Table 2: L_{Amax} Noise Levels at Assessment Locations

Figure 7 Longitudinal Analysis of L_{Amax} Levels

For comparison purposes DAA's noise consultants prepared the following L_{AMax} contours for westerly departures from the North Runway in the document entitled

Dublin Airport North Runway Relevant Action Application

Draft - Initial Response to ANCA Request for Further Information

June 2021

Bickerdike Allen Partners
Architecture Acoustics Technology

TOM PHILLIPS + ASSOCIATES
PLANNING FOR THE FUTURE

RICONDO

AECOM Delivering a better world

daa DublinAirport

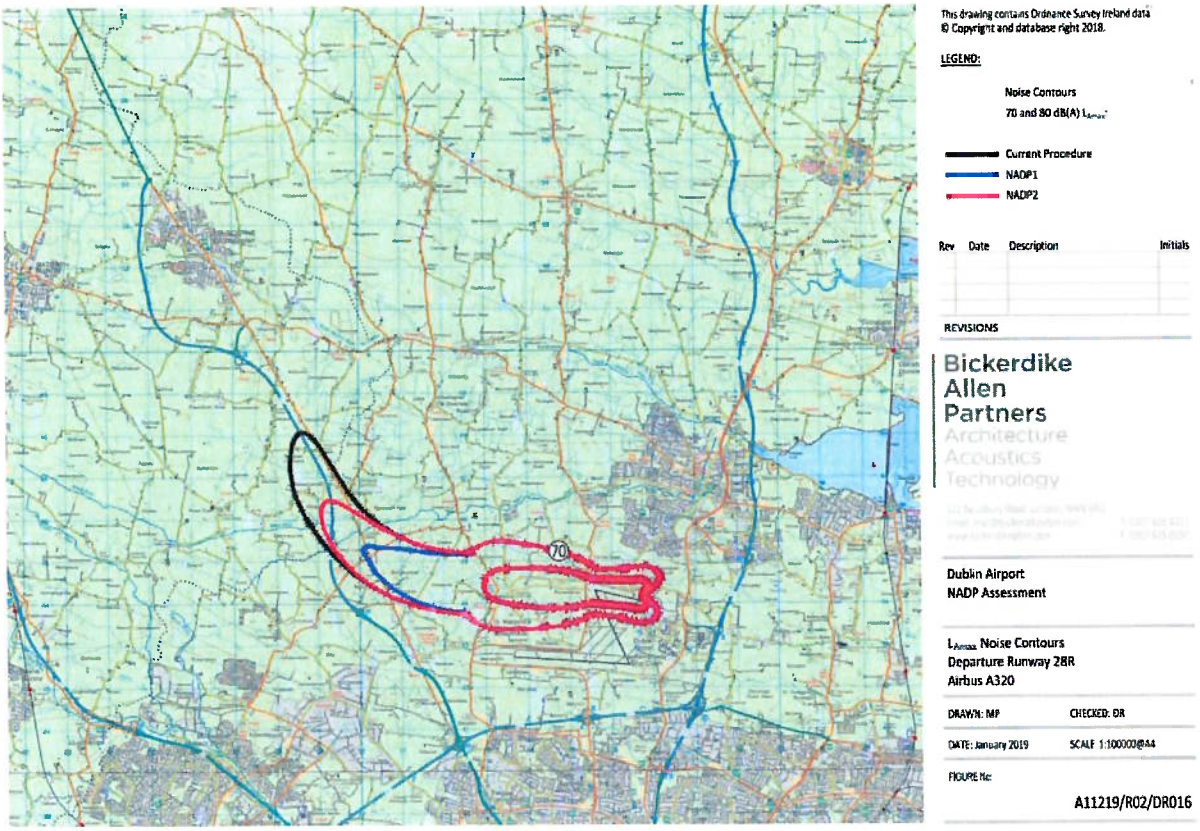

Figure 8 A320 DAA L_{Amax} Contours

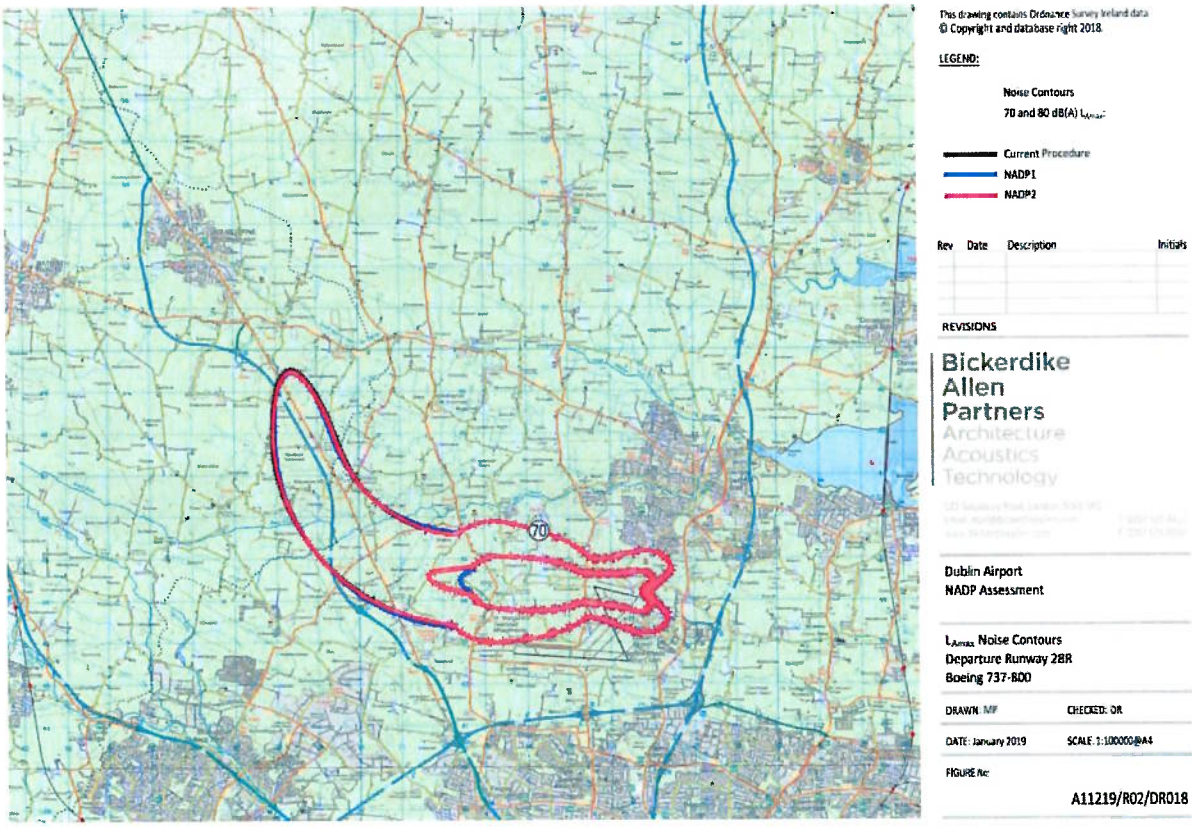

Figure 9 737-800 DAA L_{Amax} Contours

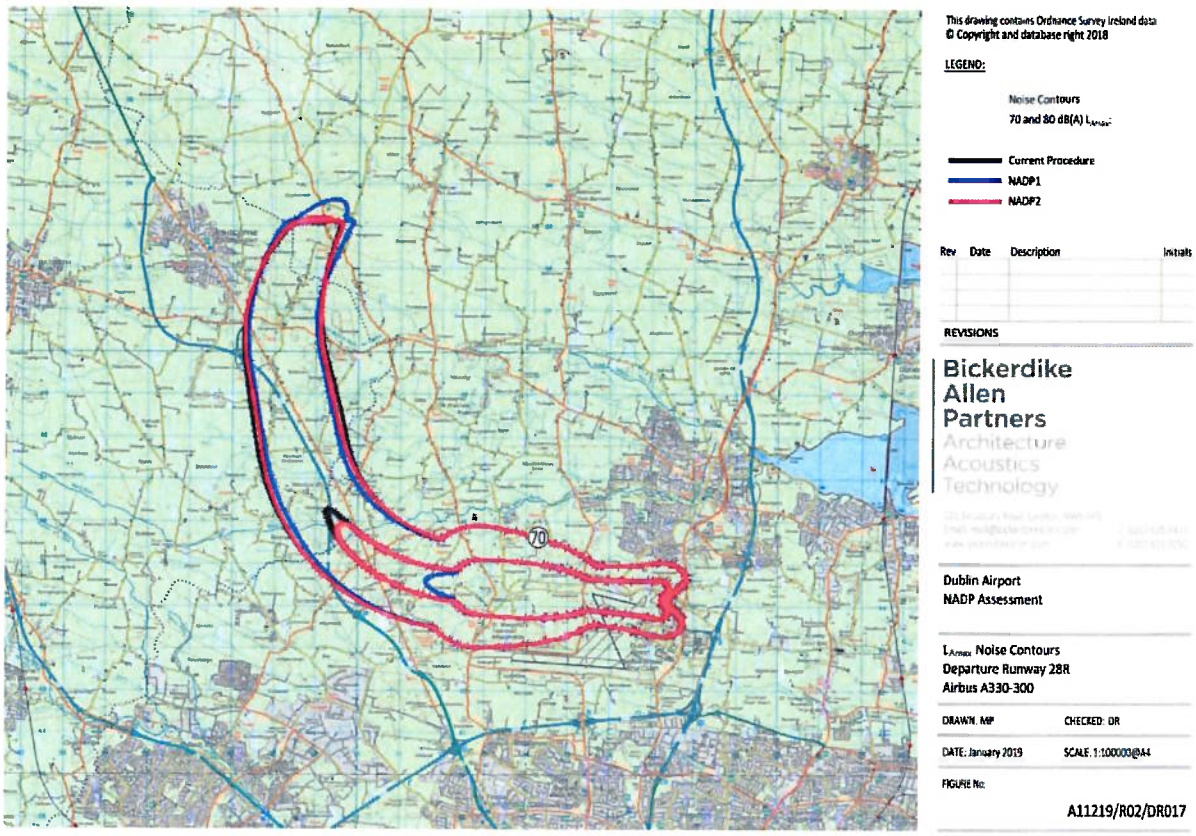

Figure 10 A330 DAA L_{Amax} Contours

Some interesting points to note here,

- The results presented in Figure 7 indicates that for 737-800 aircraft L_{Amax} levels of 80dB are expected on departures for up to 3km from the runway and they only reduce by 1dB to 79dB at 4km from the runway.
- Comparing this to the L_{Amax} contours also produced by BAP for the Relevant Action EIAR it would appear that the noise model results for the Relevant Action EIAR are considerably quieter with the 80dB L_{Amax} level not extending more than 2.4km from the North Runway.
- Similar trends are noted for the other aircraft types.
- A difference that is perhaps worth noting is that BAP changed the noise model software used between the 2018 longitudinal study and the Relevant Action EIAR. In 2018 it was the INM version 7.0d. For the EIAR it is the 'Federal Aviation Authority Aviation Environmental Design Tool (AEDT) version 2d SP2'.

An Bord Pleanála should question why there are such different L_{Amax} levels predicted for the same aircraft type by the same consultants from the same runway but only 4 years apart using different software packages. Is it possible that the EIAR model inputs using the new software are simply incorrect and the older INM model was more accurate? The accurate prediction of L_{Amax} and SEL levels underpins the entire noise assessment as the SEL values are used to determine the average noise metrics used for the DAA assessment, despite their inadequacies at assessing night noise impacts.

6.0 CONCLUSION

I request that An Bord Pleanála provide their findings to the following questions as part of their assessment of the application,

1. Compare the applicant's proposal for additional night flights and quota system to other European and UK airports where movement limits apply in addition to quota systems. This is the newest runway in the world, and it should be operated to the highest standards of noise mitigation within the Balanced Approach.
2. Examine how the applicant derived the Noise Quota System proposed. It would appear that the quota count provided was simply selected to allow DAA unrestricted movements. DAA propose a quota of 16,230 without any movement cap which is many multiples of Heathrow airport which also includes a movement limit. Heathrow is currently limited to 5,800 night-flights per year which equates to ~15 flights per night. DAA are asking for 31,885 night-flights per year which equates to ~87 flights per night. Heathrow one of the largest airports in the world can operate with a limit on night flights and Dublin Airport cannot? This makes no sense. An Bord Pleanála should refuse permission on the basis of the application being unnecessary.
3. The adverse health impacts of additional night-time noise should be thoroughly investigated. The applicant's EIAR has a very limited view of health impacts and fails to consider the impact of awakenings from noise events at night.
4. Divergent flight paths are proposed but these are dramatically different to the flight paths being implemented at Dublin Airport since the North Runway opened. How can any of the applicant's forecasts be trusted if they cannot in this case determine the flight paths to use on their own runway? An Bord Pleanála should investigate the impact of changing the flight paths on the environment.
5. Is it plausible that an airport can simply change the flight paths and therefore impact on an entirely different area without requiring the environmental impacts to be reassessed for those areas in advance? The IAA's website suggests that changes to airspace will commonly require consultation as well as environmental assessments

   https://www.iaa.ie/commercial-aviation/airspace/airspace---pbn-ta-acp-fua

   This has not occurred for the changes to the Dublin Airport airspace being operated now before a decision has been made on the Relevant Action application.
6. The night-time noise insulation scheme proposed by the applicant is not a fully compensated noise insulation scheme and instead is a grant. This is a lesser scheme when compared to the daytime insulation scheme already agreed with Fingal. There are no other examples of developers describing that mitigation is needed but then expecting the sensitive location to pay for the mitigation. An Bord Pleanála should provide a detailed critical assessment of this proposal as it is contrary to the polluter pays principal.
7. The qualification criteria for night noise insulation should be compared to progressive European Airports. No mention has been made in the document of how the proposed scheme ranks compared to other locations. This is the newest runway in the world,

and it should be operated to the highest standards of noise mitigation within the Balanced Approach. Noise insulation is a key element of the Balanced Approach that should be maximised if an airport wishes to avoid restrictions of operations as DAA do in this case.

In conclusion I request that permission is refused for this relevant action application on the basis that it will seriously impact on the health of communities closest to the airport and adequate mitigation has not been provided by the applicant.

I also support the request for an Oral Hearing.

Supporting materials

6. If you wish, you can include supporting materials with your observation. Supporting materials include:

   - photographs,
   - plans,
   - surveys,
   - drawings,
   - digital videos or DVDs,
   - technical guidance, or
   - other supporting materials.

Fee

7. You **must** make sure that the correct fee is included with your observation. You can find out the correct fee to include in our Fees and Charges Guide on our website.

This document has been awarded a Plain English mark by NALA.

Last updated: April 2019.